

Abstract

GenX (2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-propanoate) is a short-chain perfluoroalkyl substance (PFAS) generated in the production of non-stick coatings. This chemical is used by the Chemours Fayetteville Works facility and has been detected in the Cape Fear River in North Carolina as well as in private wells of residents near the facility. As a result of community concern, the chemical plant has reportedly stopped discharging GenX into the river. However, it is still measurable in private drinking water wells around the plant and the extent of contamination is not known. In addition to GenX, a number of related PFAS chemicals have been detected in the Cape Fear River and are potentially detectable in private wells. This project is designed to help address community questions about GenX exposure and health effects. We will work with community partners of the Cape Fear River Watch and the Brunswick County Department of Health to help identify a representative sample of residents, to collect biological samples, and to keep the community informed about what is known about GenX and what the study finds. We are expanding our currently funded R21 to include ~200 residents ages 6 and older living around the facility to provide blood, urine, and drinking water samples and to complete a questionnaire on their water use history. We plan to analyze blood, urine, and drinking water for GenX and related chemicals; blood and urine samples will also be used for clinical tests (lipid profile, thyroid function, liver function, and urinalysis). All results from the study will be shared with both the community as a whole and each individual participant. We will have a community advisory panel for the study to help advise about study protocols, methods of reporting back results to participants, and provide guidance on ongoing or new community concerns about GenX. This project leverages the expertise of NC State's Center for Human Health and the Environment to respond to an emerging community concern.